Comparative Analysis of New South Wales Fire Brigades Firefighters' Fire Station and Incident Site Working Environments

STRATEGIC MANAGEMENT OF CHANGE

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An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

October 1998

Abstract

The New South Wales Fire Brigades is the largest fire service in Australia. Its 6,000 firefighters deliver services through 325 fire stations across 1.6 million square kilometres. Absenteeism has been a significant problem for many years and is now costing the organisation AUD$8m per annum and is beginning to seriously affect the organisation's overall recurrent budget as well as an extensive reform agenda. The prurpose of the study was to determine whether the design of the organisation; the roles and responsibilities of managers at different levels within the organisation, and the type of work being performed in the fire station in particular were contributing towards the high level of abenteeism being experienced and the associated overtime cost. A secondary purpose of the study was to identify what changes, if any, could be made to the design of the organisation that could significantly reduce the high level of absenteeism and therefore the cost of overtime.

An evaluative research method was used to conduct this study which asked the question, "Are there signifcant differences between the design of firefighters' work environments in terms of both the fire station and emergency incidents and, if so, could these differences be influencing absenteeism". An extensive literature search was conducted to identify positive and negative attributes of organisation design. Two surveys were then conducted. The first was a personal interview with forty firefighters. The results led to the development of a survey instrument which asked fourteen questions which were indicators of how firefighters felt about their working environment in terms of both the fire station and emergency incidents. Fifty-four firefighters responded and the results showed significant differences about the way firefighters felt about their working environments. More positive feelings were expressed for the incident work environment. A recommendation was made that the Commissioner of the NSWFB establish a joint consultative committee comprising members of the NSWFB Corporate Executive Group; senior NSWFB Human Resource and Industrial Relations managers and members of the Fire Brigade Employees' Union to develop and implement the concept of Self Managing Teams within the NSWFB workplace as part of the next NSWFB/FBEU Consent Award Agreement negotiations. This approach reflects the Strategic Management of Change model contained within the Executive Fire Officer Program conducted at the United States National Fire Academy.

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Introduction

Australia's largest fire service, the New South Wales Fire Brigades (NSWFB) was established as a Statutory Authority through an Act of Parliament in 1909. It employs 6,000 firefighters and 250 administrative and support staff. Its area of responsibility covers more than 1.6 million square kilometres and it delivers a range of operational and specialist services through a network of 325 fire stations to a population of more than six million people. During 1997/98 the organisation responded to more than 110,000 incidents while more than 60,000 people visited fire stations to attend organised prevention activities.

The NSWFB has undergone significant change to its form and structure in the past seven years. The Board of Fire Commissioners, established as part of the 1909 Act and represented by a range of internal and external stakeholders, was dissolved in 1991. The Board was replaced with a Corporate Executive Group (CEG) dominated by the organisations' seven most senior fire officers and three non-firefighting directors. At the same time the organisation became an inner-budget government department, responsible to a Cabinet Minister and funded through the State Government Treasury. The Treasury assumes no financial growth from year-to-year, other than increases or decreases in the rate of inflation, award increases and supplemental funding for approved enhancement projects such as staff; specialised equipment or specialist training programs.

A hierarchical rank management structure encompasses three categories. The strategic level includes the Commissioner; six Assistant Commissioners; eight Chief Superintendents and thirty Superintendents. The operational level is made up of 90 Inspectors and the tactical level is made up of 800 Station Commanders and almost 5,000 firefighters.

The organisation has two main components. The first is the operational component which is defined as incident response and incident management. Incident response is further defined as response to fires; hazardous material incidents; non-fire rescues; natural hazard events and other incidents which have a negative impact on the community or individuals and groups within it.

The second is the administrative component. This is further defined as the activities that take place in and around fire stations in particular. These include: routine paperwork and administration; station work; pre-incident planning and prevention activities.

Since 1991 the NSWFB has been undergoing a dramatic process of workplace and technological reform which commenced at the strategic level of management. For example, in place of an ad-hoc approach, a resource allocation model called Standards of Fire Cover established a scientifically-based resource allocation framework based on the critical time and distance relationship between fire detection, intervention and containment (NSWFB 1991). Additionally, a public commitment has been made to a core business of balancing suppression with prevention (NSWFB, 1991; NSWFB, 1993; NSWFB, 1994; NSWFB, 1995; NSWFB, 1996; NSWFB; 1997; NSWFB, 1998).

In the area of career progression, a seniority-based promotion system has been replaced with merit-based promotion at the strategic level and traditional rote-based learning is being replaced with Competency-based Training (CBT). Technological developments have seen the introduction of a leading-edge dispatch system (FiresIII) featuring a Geographical Information System (GIS) with an Automatic Vehicle Locater (AVL) capability and an increased level of computerisation across the organisation.

Collectively, these reforms are designed to improve and enhance the organisation's effectiveness in achieving its community protection objectives while optimising the efficient use of tax-payer funded resources.

A significant absenteeism problem has existed within the organisation for many years and is continuing to deteriorate, particularly amongst firefighters at the 100 fire stations located within the greater Sydney area (gSa). These firefighters represent the core of the NSWFBs' 2,800 full-time (career) firefighters. They work under an industrial award which prescribes a four-shift system of two 10 hour day-shifts followed by two 14 hour night-shifts followed by four days off-duty (10/14 roster). The Award provides for extra hours to be paid at overtime rates and contains a provision for 144 hours paid

sick leave per annum as well as various other forms of recreational leave. Consecutive State Governments have maintained a policy that precludes compensation being paid for unused sick leave; this policy is fully supported by the Fire Brigade Employees' Union (FBEU).

The organisation has a long-standing minimum staffing agreement with the FBEU which stipulates a safe and effective crew size. This provides for an officer and three firefighters on all frontline pumpers and two firefighters on specialist vehicles such as Rescue; HazMat and Aerials. This means that any staff shortfalls must be filled either through a relieving corps of officers and firefighters to provide replacements for annual leave and long-service leave. If these are fully committed and vacancies still occur, the required number of on-duty staff are retained on overtime rates until replacements are recalled to duty, also on overtime rates. When this occurs, the first two hours are paid at time and a half with the remainder paid at double-time.

The purpose of this study is to determine whether the design of the organisation; the roles and responsibilities of managers at different levels within the organisation, and the type of work being performed in the fire station in particular are contributing towards the high level of abenteeism being experienced and the associated overtime cost. A secondary purpose of the study is to identify what changes, if any, could be made to the design of the organisation that could significantly reduce the high level of absenteeism and therefore the cost of overtime.

An evaluative research method was used to conduct this study which asked the question, "Are there signifcant differences between the design of firefighters' work environments in terms of both the fire station and emergency incidents".

Background and significance

Analysis of data contained within the organisation's management information system (MIS) first revealed the dimension of the problem in 1991. At that time absenteeism represented four percent of the total discretionary recurrent budget, excluding wages and asset maintenance (Freeman, 1991 discussion with author). An initial intervention strategy was directed towards identifying individuals who displayed

'unsatisfactory' sick leave so that discipline could be applied. The lack of success with this intervention prompted a second intervention in 1992 (NSWFB, 1992).

The second intervention – which initially displayed much more success than the first – was built upon a detailed methodology which analysed the system within which the problem existed. However, the success of the 1992 intervention waned over a period of 12 months. This was because its implementation ignored the proposed attitudinal and behavioural changes needed throughout the various levels of management to facilitate the introduction of several innovative components of the intervention (Thompson, 1994a).

Additionally, the 1992 analysis failed to address the sick leave problem in total in that it did not fully identify underlying systemic problems. Another report produced in 1996, identified the problem as one of absenteeism in general rather than one of sick leave in particular (Anderson and Thompson, 1996) but still did not fully address the underlying systemic problems contained within the organisation's design and the roles and responsibilities of its employees.

In 1998, absenteeism is costing the organisation more than AUD$8m per annum from the recurrent budget of AUD$35m out of a total budget of AUD$300m. In other words, more than 25% of the discretionary component of the recurrent budget is being used to fund overtime. Expenditure associated with absenteeism is now impacting seriously on other accounts within the recurrent budget such as property maintenance; vehicle maintenance; training, and critical elements of the reform agenda. The high overtime cost associated with absenteeism has reached the point where service delivery failure, occupational health and safety and significant industrial issues are becoming a potential reality.

This project is significant in terms of the fundamental change that could be required to the NSWFB working environment before the absenteeism problem and the high cost associated with absenteeism can be reduced. This will require rigorous application of a successful change process. The 1997 United States Fire Academy Executive Fire Officer Program module titled "Strategic Management of Change" provided extensive training about the change process to participants (National Fire

Academy; 1996). The skills gained during the delivery and subsequent analysis of that module will be applied to this research project.

Literature Review

A 1998 report into the NSWFBs' absenteeism problem by the Internal Audit Bureau (IAB) found that the use of secondments to specialist areas was causing "....shrinkage...." within the firefighting corps over and above planned absences such as annual leave, average sick leave and long-service leave. This in turn resulted in overtime being paid to replacements. The report also found, however, that this only accounted for part of the problem with the main problem being the high level of absenteeism being generated through sick leave and various other types of leave. While the report recommended the NSWFB address staff shortages through the normal budget enhancement process, it recommended very strongly that senior management identify and address ways in which the absenteeism problem could be addressed (IAB, 1998).

Two philosophies exist in terms of organisation design and an understanding of both is fundamental to organisational problem-solving. The more traditional of these is based on a reductionist; rational, or scientific approach. A contemporary philosophy is based on a more humanist (holistic or systems) approach.

Traditional problem-solving had its genesis in Weber's rational-legal model of management with its emphasis on rules, regulations and discipline. This view was supported by many contemporary management theorists of the 20th-century such as Henri Fayol (1949), Luther Gulick (1937) and the scientific management pioneer Frederick W. Taylor (1911). These theorists believed that obstacles to success could be overcome by isolating the cause of the problem and resolving it through the removal of the problem element, strong management and/or discipline.

A review of the NSWFB's examination system found an exclusive focus on traditional problem-solving with a strong emphasis on punishment in the form of discipline or transfer as a way of solving many problems. This was reinforced by a review of literature supplied to firefighters at fire stations which

included: Standing Orders (NSWFB, 1997); the Fire Brigades Act (NSWFB, 1994); the Fire Brigades Regulations (NSWFB, 1994) and the NSW Fire Brigades' Employees' (State) Award (1996).

A more contemporary approach to problem-solving and the associated elements of cultural and attitudinal change comes from a large number of researchers and commentators who argue that a holistic, or systems, model is more appropriate than the traditional reductionist approach. The systems approach had its genesis in the academic disciplines of biology and social psychology; both of which argue that any environment is a complex interacting system and that the effects of one component will effect other, interconnected, components. Organisational psychologists and management theorists subsequently introduced this model into the world of business and management. (James, 1910; Mead, 1947; Bertalanffy, 1951; Noble, 1989; Hampden-Turner, 1990:15-17).

Holistic principles were employed during an analysis of the London Fire Brigade conducted by Lyth in 1989. Lyth subsequently found "....disturbing and confusing contradictions...." among firefighters and argued that their workplace was dysfunctional. Lyth argued that although firefighters need to have high technical knowledge, physical stamina, courage and endurance they were required to perform many menial tasks within the fire station; this created feelings within themselves that they were doing less than " ....a man sized job". These feelings were compounded by feelings of insignificance because of the firefighters' considerably lower number of "....productive" working hours when compared to the broader community. These were further compounded by a feeling of isolation from the community which they serviced as a result of their purely reactive emergency response focus (Lyth, 1989).

Lyth concluded that this combination was creating low self-esteem amongst firefighters in London which was manifesting itself in the form of negative attribution. Although absenteeism was not the focus of Lyth's report it should be noted that the catalyst for the analysis was extremely high staff turnover which could be interpreted as the most extreme form of absenteeism. This is particularly significant considering the difficult economic climate and the high level of unemployment which was evident at that time in the United Kingdom.

Heider (1944) argued that negative attribution is a phenomenon which appears when individuals who do not acquire meaning in their lives develop feelings of low self-esteem. They subsequently rationalise their low self-esteem by attributing their negative feelings to the actions of other individuals, or to the system within which they work, and will frequently avoid confronting these individuals and/or the system. Heider's attribution theory attempts to explain the way people assign cause for success or failure. Heider uses the term attribution error to explain how individuals typically treat any success, such as good performance, as their own. In the absence of a measure of positive performance or success individuals tend to think they are performing poorly and frequently suffer from low self esteem. However, rather than blame themselves, they will often attribute this to other individuals or to the system within which they operate (Heider, 1944 cited in Worchel, Cooper and Goethals, 1991:47-51).

Hertzberg (1982) argues that a lack of intrinsic motivators in the workplace also creates low self-esteem and job dissatisfaction which subsequently manifests itself in interconnected parts of the system such as absenteeism facilitated through the system's leave provisions. Hertzberg's Two-Factor Theory (also called motivation-hygiene theory) argues that two separate unipolar continua are required to reflect people's dual orientation to work. Factors associated with the job itself (intrinsic, content or psychological factors) tend to lead along one continuum from no job satisfaction to increasing job satisfaction. These include recognition for work well done, the work itself, responsibility and advancement. Factors associated with job dissatisfaction relate to the environment surrounding the job (extrinsic, context or physical factors) and move along a second continuum which culminates in job dissatisfaction. These factors include company policy and administration, supervision, salary, interpersonal relations and working conditions (including access to leave benefits) (Hertzberg, cited in Organ and Hamner, 1982:190-191).

Job satisfiers are called motivators since they fulfil an individual's need for psychological growth these, it is argued, are generally determiners of long-term changes. Job dissatisfiers are called hygienes since they merely serve to hold an individual to employment. Hertzberg argues that if motivators are neglected then employees will become dissatisfied and that this dissatisfaction will often manifest itself in demands for more hygienes.

Studies conducted by Hertzberg show that when a process called job enrichment was introduced to workplaces it provided the intrinsic motivation needed by workers and generally produced results such as "....better morale, less absenteeism and greater production" (Hertzberg cited in Hammond et el, 1982:190). Hertzberg argued that to achieve intrinsic motivation the worker must be provided with "....an opportunity to experience a sense of achievement on the job. This means building into the job complexity, autonomy and challenge". Hertzberg added that job enrichment should also provide workers with the responsibility for planning the operations and evaluating the product of the operations.

Support for Hertzberg's concepts come from many commentators such as Argyris (1957) who indicted the bureaucratic form of work organisation and called for new approaches to structuring the work environment. Similarly, Hackner and Oldham (1975) identified six attributes of tasks that largely determine the degree of intrinsic rewards from job effort. These are: variety; autonomy; task identity; feedback; task significance and worker participation in managerial decision making. Task significance is particularly important because it signals to the worker the degree to which the job really counts (Argyris, 1957 cited in Organ et al, 1982:191; Hackner and Oldham, 1975 cited in Organ et al, 1982:192-193).

Thompson (1997) argues that three levels of management exist in organisations and that each level has different roles and functions within the total management system. Thompson argues that if this structure is not properly understood throughout the organisation, or is not properly managed itself, the organisation will be largely inefficient in terms of resource usage and ineffective in terms of progress towards its corporate objectives.

Thompson says the role of strategic level management is to develop, implement and monitor the organisation's long-term objectives with the predominant process at this level being cognitive rather than practical. The role of the operational level of management is to translate the strategic issues into action at the tactical level of the organisation; this level is management is balanced between cognitive process and practical application. The role of tactical level management is to carry out the actions needed to progress the organisation towards its objectives on a day-to-day basis with the predominant process being one of practical application rather than high level cognitive processing.

Each level operates in the other two levels for at least some of the time. Thompson also argues that a dynamic communication process exists within this system that sees feedback received from the tactical level being communicated through the operational level to the strategic level. The purpose of this process is to ensure that objectives and strategies are modified and to ensure that appropriate resources are obtained for tactical level activities. Support for this model comes from the research of Everett Rogers who found that face-to-face communication with influential people from within a community had the highest likelihood of significant and long-lasting change being introduced to that community.

The Literature Review influenced the research project in that it indicated a strong possibility that NSWFB firefighters' working environment contains contradictions that could have an adverse impact on self-esteem which could in turn lead to avoidance in the form of absenteeism.

Procedures

Analysis of the NSWFBs' Human Resource Information Management System (HRIM) was conducted to identify the current level of absenteeism in terms of types of leave and in terms of individual ranks at the fire station level.

A simple survey was conducted with firefighters at ten metropolitan fire stations in the greater Sydney area (N=40) between the months of February and March 1998 (Appendix A). The survey method consisted of an informal group discussion which lasted for about 30 minutes and asked a single question, "How do you feel about being a firefighter?" The responses were not written down; but a mental reference was kept of the type of response for later use. The survey was conducted by the researcher as part of regular duties and the participants were not aware that the question related to the development of a research project.

The results gained through this process led to the development of a survey instrument designed around several organisational design and motivation theories. The survey contained fourteen questions which asked respondents to indicate how they felt about the organisation. All questions but one related to both the fire station environment and the incident environment. The other question asked for feelings in

relation to social needs but did not differentiate between the two work environments. Respondents were asked to indicate their level of feeling for each question within each environment on a five-point Likehert Scale graduated from Very Low to Very High (Appendix B). The respondents ranks ranged upwards from Level Four Firefighter to Station Officer.

The second survey was conducted using facsimile machines between the researcher's office and 17 Sydney fire stations. The stations were selected using repeated return random sampling. Fifty four questionnaires were distributed and fifty four firefighters responded to the survey; this represented ten percent of the workforce on duty at the time the survey was conducted (Appendix C).

The results were analysed by developing an electronic spreadsheet and the use of a computerised statistical package called SPSS. An Analysis of Variance (ANOVA) was conducted to determine whether there were significant differnces between feelings expressed by firefighters about their fire station and operational working environments.

System analysis, motivation theory and previous research into the working environment of firefighters were then used to identify a possible underlying cause for the organisation's continuing high level of absenteeism. Contemporary management theory was then applied to underlying systemic problems identified through the survey and analysis process. This was done with a view towards developing a better working environment as part of an overall objective to reduce absenteeism.

An assumption was made that there were no differences in feelings about the two workplace environments between stations with a high level of incident response and those with a low level of incident response. Another assumption made, based on the researcher's experience with the organisation, was that the three levels of management; their roles, and their responsibilities are not clearly understood throughout the organisation's workforce.

A limitation to the second survey instrument was the use of five choices on the Likehert Scale. The inclusion of the "Medium" choice provided an opportunity for respondents to take a neutral position rather than indicate their preference for one environment over another.

A further limitation to the second survey was that analysis was not conducted to determine whether or not significant differences in feelings exist between the rank of station officer and firefighters in either working environment.

Results

Analysis of the HRIM data found that 539,490.81 hours of absenteeism were recorded during the 96/97 financial year. Of this, 210,295 hours were sick leave with the balance of 196,038.81 recorded under other types of leave. This represents an increase on the total for 94/95 of 133,165 hours with an increase of 117,295.98 recorded against sick leave for the same period (Table One).

The average amount of sick leave taken during 1994/95 was 75.1 hours per firefighter whereas this figure climbed to 116.99 hours during 1997/98.

Leave type	Hours 1994/95	Hours 1996/97	Hours 1997/98
Sick leave	210,295.00	321,509.33	327,590.98
Long service leave	69,559.72	98,050.20	87,717.18
Consolidated leave	86,491.65	69,762.18	75,481.99
Leave without pay	16,848.03	19,964.21	19,834.97
Sick leave without pay	8,483.27	4,843.33	9,471.63
Armed services leave	4,394.00	3,673	1,478
Special leave	7,530.39	8,585.62	17,250.31
Union leave	2,723.75	1,172.75	665.75
Total	**406,325.81**	**527,560.62**	**539,490.81**

Table One: Comparative leave hours 1994/95 to 1997/98

Analysis of sick leave by rank found differences in the amount of leave taken between each rank (Table Two)

Rank	Average sick leave (hours)
L4	32.2
QFF	72.25
SFF	69.9
LFF	57.5
Relieving SO	5.5
SOL1	38
SOL2	72.2

Table Two: Sick leave hours by rank (selected ranks)

During the course of the personal interview survey, it was noticed that comments made by firefighters about the fire station environment differed markedly from those made about the incident environment. Within the context of the fire station environment, the question resulted in comments such as; "Who really cares what I think."; "Things are slowly improving but I'm sick of not being treated like an adult while I'm at work"; "I feel bad because the public think we get paid for sleeping."; "They (the public) think we get paid for sitting around and playing cards."; "They (senior and executive officers) have forgotten what it's like to be at the front line"; "I have responsibility for millions of dollars worth of equipment but I have no real idea of how I'm supposed to manage people"; "The guys look to me for direction, but I don't know what to tell them"; "It's management's job to fix the problems, I'm just a small cog in a big wheel", and "The system's stuffed".

Within the context of the incident environment, the comments were more positive and included "We're focused as a team on what needs to be done"; "We feel our work is valued by people", and "I make decisions that count".

Analysis of the second survey data showed significant differences between the fire station workplace and the incident workplace in terms of workplace variety; challenges; complexity; the identity

and significance of the task, feedback; participation in decision-making; loyalty; training and personal identification with the NSWFBs' success. The histograms and distribution curves show that more positive feelings were expressed for the incident than for the fire station on each measure. The difference between the fire station and incidents in terms of freedom; technology; relationship between employee and management, and support were not significant. The results, however, show a high level of negative feelings in terms of both the fire station and incidents on these latter measures (Table Three) (Appendix C).

Measure	F	Significance
Vatriety of Work	18.249	0.000
Challenges	40.203	0.000
Complexity	43.692	0.000
Freedom	1.248	0.267
Task Identity	52.661	0.000
Feedback	8.405	0.005
Task Significance	75.622	0.000
Participation in Decision-making	8.932	0.003
Loyalty	13.493	0.000
Technology	1.602	0.208
Training	5.537	0.020
Personal Identification with NSWFB's Success	16.335	0.000
Relationship Between Employee and Management	1.331	0.251
Support	2.478	0.122

Table Three: Summary of results from ANOVA tests (at the .05 level).

Unsolicited comments provided to the second instrument in relation to the fire station environment included the following. In response to Variety of Work, "Choice of mop or vacuum cleaner is my one big decision of the day"; in response to Complexity "I try not to overfill the bucket when I mop; in response to Feedback "No feedback positive or otherwise"; in response to Participation in decision-making, "None"; in response to Relationships between employee and management, "...my level of trust (in management) is zero", and in relation to Participation in decision-making, "The opinions of low-life firefighters are not sought after".

Discussion

The differences in the amount of sick leave taken between different ranks show increasing sick leave amongst firefighters who have been with the organisation in excess of five years. The amount then reduces amongst those recently promoted to Station Officer before increasing again amongst those Station Officers with more than two years experience at this level (SOL2). This perhaps suggests that as tasks become less complex and less challenging, absenteeism through sick leave increases until such time as new experiences and responsibilities are introduced at the rank of station officer; however, once the new experiences and responsibilities become more routine at this level over time, the level of absenteeism through sick leave again increases.

Comments such as those recorded during the interview-type survey imply both low self esteem as found by Lyth; the presence of negative attribution's as argued by Heider and a need for job enrichment as described by Hertzberg.

The results of the survey questionnaire show a high level of dissatisfaction with the workplace environment at the fire station environment when compared to incident workplace. This view is reinforced through unsolicited comments received on questionnaires.

Since 90% of firefighters' working time is spent at fire stations, the results of both surveys suggest very strongly that absenteeism is being generated by low self-esteem associated with a low level of intrinsic motivation within the context of the fire station workplace. It is suggested that it is this which is attracting attention from management in the NSWFB. The results also suggest that senior management

has become involved in a resource intensive, costly and ineffective program of addressing a symptom rather than a cause. These suggestions are based on the coupling of the theories and research discussed up to this point with the following analysis of the NSWFB System.

The key components in the NSWFB System are:

- Executive management;

- Senior management;

- Administration (Finance, Industrial Relations, Personnel, Occupational Health and Safety, etc.);

- Training;

- Technical support (Engineering; Property Maintenance; Fleet; etcetera.), and

- Operational units (fire stations).

Although significant change has taken place within the past seven years, much of this change has taken place at the strategic levels of the organisation and in the areas of recruit training, administration and support. Since the absenteeism problem presents itself primarily at the fire station component of the overall system, further analysis was undertaken at this level. Analysis of the fire station environment revealed the following characteristics:

- it is highly controlled and the control is vested in policies, procedures, rules and regulations which filter down to the fire station along a strictly hierarchical chain of command;

- it operates along the lines of rational, logical, thinking based on the assumption that if roles are clearly defined people will do exactly what is required and are not expected – or encouraged – to do more;

- there are clearly defined roles for those working in fire stations based on position and rank. Firefighters carry out a range of menial tasks such as washing the vehicle(s), vacuuming accommodation areas; cleaning toilets and ablution areas, and answering the telephone. Officers focus on discipline and the management of all the activities which take place within the fire station with little or no involvement by firefighters;

- officers and firefighters are required to visit areas of significant hazard in their station areas and record relevant details. The information, however, is simply filed at the fire station and serves no further purpose;

- there is a low level of communication between frontline firefighters and senior managers;

- training is largely repetitive and uninteresting;

- there is little knowledge about other areas within the organisation and direct support systems do not exist – all inquiries must be made up through a chain of command which frequently involves up to seven levels of middle and senior management;

- the job description is more important than the individual, resulting in a regimented, bureaucratic style;

- senior level and middle level managers have little to do with the fire station environment other than to process routine matters, and

- there is an emphasis on punishment for mistakes and failures with little or no reward or positive feedback on achievements.

Handy (1985) uses the term "role-culture" to describe the organisational culture which is characteristic of this model. Handy argues that the role culture is one in which people must know and live

by the rules and procedures. The high predictability often bores people and rewards and recognition are almost exclusively psychological. High absenteeism is a characteristic of this work environment.

By way of comparison, analysis of the incident environment revealed the following characteristics:

- there is a high level of freedom to make decisions based on calculated risk. The Fire Brigades Act specifically excludes firefighters at an incident from all other legislative requirements within the State and empowers individuals;

- guidelines, rather than a prescribed course of action, underpins decision-making and firefighters work as a team to solve complex and challenging problems;

- there are clearly defined roles but the range of tasks carried out within those roles is broad and carried out within a dynamic environment;

- firefighters play important roles within a well-designed incident management system which focuses individuals on objectives which contribute to the overall outcome;

- senior officers respond quickly to provide access to additional resources; to determine overall strategy and to coordinate overall progress towards objectives;

- a high level of communication is facilitated through face-to-face contact and through a high level of communication technology;

- the entire organisation is able to provide immediate support without a moments notice;

- the individual's contribution is highly valued by the rest of the team, and

- there is an emphasis on immediate feedback using peer debriefing and feedback from the affected part of the community itself. (Both analyses based on the work of Handy,1985:157).

The latter characteristics reflect the attributes identified by management theorists and organisation-design psychologists identified in the Literature Review as those that contribute towards a positive work environment. However, the amount of time spent by NSWFB firefighters inside this environment currently represents on average only 10% of their total annual working hours (NSWFB, 1997); this means the majority of their working hours are spent in a psychologically poorer working environment. The presence of two diametrically opposed working environments also indicates support for Lyth's findings that the NSWFB firefighters' total working environment is dysfunctional and contributes towards workplace avoidance in the form of absenteeism.

There are four clear options facing the NSWFB in relation to the absenteeism problem. The first option is to do nothing and accept that a high level of absenteeism is an inescapable fact of life in the NSWFB. The second option is to continue directing resources and effort towards reducing absenteeism by introducing more stringent monitoring systems which target individuals so that discipline can be imposed. The third option is to change industrial agreements about rosters and safe and effective crew size. The fourth option is to address the workplace design at the fire station so that this environment more closely resembles the more positively-viewed incident environment.

Option one is untenable and would eventually result in government intervention being imposed on NSWFB management through the State Parliament.

Option two would simply perpetuate an existing approach which has been found to be unsuccessful.

Option three would result in an unacceptable level of industrial dispute between executive management; the workforce and their industrial representatives which would result in a politically unsatisfactory outcome.

The preferred choice is option four. This is the only option that introduces the long-lasting attitudinal and behavioural change needed to fully address the problem. This option, however, requires a

dramatic reorganisation of the way the fire station and its support systems operate so that two objectives are met. Firstly, there should be a significant reduction in the level of absenteeism amongst firefighters and a corresponding reduction in overtime costs. Secondly, there should be measurable achievements towards several key corporate plan objectives, including:

- balancing suppression with prevention;

- having a community service focus, and

- improving workforce skills, motivation and job satisfaction (NSWFB, 1998).

Many contemporary commentators note that organisations which meet certain criteria for excellence – which includes a high level of self esteem among employees and low levels of absenteeism – have pushed autonomy down to the shop floor and are fanatical about the few core values they hold dear. They are also characterised by flat organisational hierarchies, loyalty, commitment through effective training and personal identification with the company's success. Similarly, the human relationship between employee and supervisor facilitates their ability to review their own actions and initiate whatever corrective actions are necessary to realign themselves with the goals and objectives that have been established between themselves and their employer. These organisations are also characterised by adaptability and the introduction to the workplace of suitable technologies and support systems (Peters and Waterman., 1991:15-39).

Salem, Lazarus and Cullen (1992) however, note that nothing less than, "....the complete restructuring of the jobs that people perform" is necessary for the transformation to autonomy, or semi-autonomy, to be successful (Salem, Lazarus and Cullen, 1992, cited in Commonwealth of Australia, 1993). Salem et al. argue that the concept of semi autonomous workgroups, sometimes called Self Managing Teams (SMTs), are heavily geared towards self-actualisation of the individual and are therefore ideal for creating a high level of trust between employers and employees while increasing individual self-esteem. Groups are typically between five to fifteen in number, have the authority to carry out their own tasks, are in direct control of many primary management functions, and have the ability to

review their own actions and initiate whatever corrective actions are necessary to realign themselves with the goals and objectives that have been jointly established between employees and their supervisors (Salem et al., 1992). These criteria are almost identical to those experienced by NSWFB firefighters at incidents.

Many contemporary commentators note a high level of success, which includes reduced absenteeism, in organisations that have adopted approaches which have this research as part of their underpinning rationale for undergoing workplace reform (Peters et al, 1991). A limitation, however, is that as Handy suggests, role oriented cultures are highly resistant to change (Handy, 1985). Barker (1993), building on the results of research conducted by Kuhn (1970), uses the term paradigm shift to explain how individuals need to see that a once suitable set of values and beliefs is no longer appropriate and that a new model often has to be applied to solve the problems which are unable to be solved using the old paradigm.

The 1988 Structural Efficiency Principle (SEP) and subsequent enterprise bargaining initiatives provide a framework within which change to a more meaningful working environment can exist at NSWFB fire stations while simultaneously catering for organisational effectiveness, efficiency and the achievement of corporate goals (Commonwealth Government; 1993:109). This framework provides an environment within which employer and employee representatives work together to identify problems and develop constructive solutions that satisfy the needs of both parties. Unlike previous industrial agreements, the NSWFBs' 1998 Consent Award (NSWFB; 1998) is built upon the Structural Efficiency Principle and provides scope for salary increases to be linked directly to productivity savings such as those gained through the redesign of traditional workplace roles and responsibilities.

The NSW Fire Brigades Employees' 1998 Consent Award provides for a Statement of Agreed Position. This identifies jointly agreed reforms which both parties are legally required to work towards in a spirit of collaboration and consultation; in fact they must be achieved before productivity savings are passed on to employees. It should be noted that the purpose of the Structural Efficiency Principle is to, amongst other things "....improve the efficiency of industry and provide workers with access to more

varied, fulfilling and better paid jobs" (Commonwealth Government, 1989 cited in PSM4, 1993:109-110).

Unlike many organisations that have to spend a large amount of money to create environments within which to accommodate SMTs, the NSWFB already has the infrastructure in place. There are 100 fire stations in Sydney and each is staffed with a crew of between four and twelve people on each of four shifts. For SMTs to be introduced successfully the NSWFB would need to focus on the two groups that are most affected by the change – workers and managers. Simmons and Blitzman suggest the process of transformation begins gradually with the introduction of the worker to relatively simple supervisory and analytical functions. As the employee becomes more comfortable with these tasks, he or she can then be acquainted with more involved functions such as coordinating or controlling. The tasks progressively become more interdependent and require development and training with respect to behaviour, decision making and communication. If this process is followed, the team will eventually become a fully integrated unit (Simmons and Blitzman, 1986 cited in Commonwealth Government PSM4, 1993).

The application of this model to NSWFB fire stations would see an increased level of management devolution from strategic level managers to tactical level frontline managers and a corresponding transfer of routine planning and administrative functions across existing lines of industrial demarcation between station officers and firefighters; this would include the transfer of routine administrative matters such as record-keeping and some project management. The gradual introduction of business planning and budgeting at each fire station would see guidelines being developed which would serve to progress the development and implementation of activities that are linked directly to key result areas identified in strategic level business plans and the organisation's overarching corporate plan.

Tactical level managers would be provided with direct control of their day-to-day activities through immediate access to fire station-based budgets. This would also enable station officers to facilitate the development and implementation of station-based projects in consultation with their own crews, particularly those activities that focus on prevention and community safety objectives. Budget control would result in a higher level of work-place control and complexity being introduced while

station officers would have the authority to provide budgets to individual firefighters to facilitate station-based projects. Simultaneously, a more complex and more challenging workplace environment would be created in and around each fire station and at all levels within each fire station. Theoretically, these changes to the fire station environment will result in reduced absenteeism and reduced overtime expenditure.

Savings gained through reduced absenteeism as a result of work-place redesign would, over time, facilitate amongst other things the introduction of a higher level of information technology at fire stations. This would see an increased level of access to the type of information needed to facilitate higher level and better informed decision-making using technology such as the FiresIII dispatch system and related applications. This would be based on local level analysis of incident data for individual stations as well as data aggregated across zones, regions and the State.

The role of strategic level managers would change from one of ensuring that rules and regulations are being followed to one of implementing and monitoring the organisation's overall corporate objectives in addition to those that focus on incident management; facilitating tactical level access to resources, and providing timely and accurate information to frontline firefighters. Furthermore, this level of management would encourage career development within the merit-based promotion framework by providing access to station-based projects which are geared towards the further achievement of long-term individual and corporate objectives. In turn, this would lead to a higher level of productivity at each fire station and a related increase in individual and group self-esteem; this again would lead to reduced absenteeism and a corresponding reduction in overtime costs.

Within the fire station context, the role of the operational level of management would change from one of processing routine administrative matters and simply responding to large incidents to one of communicating corporate goals clearly between the strategic and tactical levels on a face-to-face basis while providing the first level of support to routine administrative matters. Operational level managers would also coordinate similar activities across a number of fire stations and facilitate the development of pre-incident plans for eventual inclusion on the FiresIII dispatch system; this would ensure meaningful information is available for immediate retrieval by frontline crews during response. An important function

of this position will be the provision of feedback from the tactical level to the strategic level so that objectives and strategies can be reinforced or modified and to ensure the supply of appropriate resources to tactical level managers.

As suggested by many researchers (for example Hertzberg), the introduction of the SMT concept will also require the introduction of performance evaluation systems which focus on individual performance in order to facilitate the realignment of individuals with the jointly agreed upon goals and objectives which is a characteristic of this type of environment. The NSW Public Sector Reform Commission has also expressed the view that individuals receive motivation through receiving feedback on the achievement of goals negotiated through consultation and participation.

Several contemporary commentators support this view and suggest that this is particularly the case when individual goals are aligned with the organisation's desired strategic outcomes. It has been argued strongly that the introduction of performance review systems provide the vehicle for that motivation (Cherry, 1993; Curtain, 1993; Dickenson, 1993:109-110; Smith, 1991:8; Romanoff cited in Dickenson, 1993:112; Wood cited in Dickenson, 1993:112).

To facilitate the transition to a SMT workplace which simulates the incident workplace environment, NSWFB executives and senior managers will need to receive training in more advanced forms of the training being proposed for firefighters. These people will need to be briefed on the concept of SMTs; on how the introduction of SMTs will effect, and in most cases improve, their relationships with their crews; and on how to develop and maintain SMTs. This could be achieved through the organisation's in-service officer development programs; an increased level of exposure to contemporary management programs conducted by external providers and the introduction of an executive development program in partnership with tertiary level educational institutions. Station officers, also, will need to change their focus at the fire station from one of managing through the application of rules and regulations to one of coach and mentor to their team.

Accompanying these changes, a tangible reward system would be implemented within which senior and executive management recognise achievements while not acknowledging mistakes and/or

failures. This would be a significant departure from current practice and is based on the work of R.F Skinner. Skinner found that positive reinforcement (rewards), particularly when applied intermittently, resulted in a greater likelihood that the same type of behaviour would be repeated again; whereas negative reinforcement or the absence of any rewards reduced the likelihood of that behaviour happening again (Skinner, 1938:247, 257, 279).

A potential destabilising force to the changes being proposed is the level of resistance that can be expected. The NSWFB has a large workforce which joins at a young age, typically between the ages of 18 and 25, and remains with the organisation until retirement ages of 55 years or more. Kerr and Kerr (1972) note that people who have been part of an organisation for this length of time are highly resistant to change. As managers, they reached their positions through learning exactly what the organisation expected for advancement. Kerr and Kerr argue that although new expectations will eventually replace their views, many of the older employees will strongly oppose changes that require them to learn a completely new process. Interestingly, Barker (1993) argues that most managers fail to see the need for new models, preferring instead to highlight the achievements made under the existing model.

The application of these theories to the fire station environment should facilitate reduced absenteeism and lead to the better use of a limited recurrent budget. Similarly, by developing similar intervention strategies for those apsects of the incident environment that recorded very low responses, a psychologically positive organsation will emerge irrespective of the spevcific envirionment firefighters will find themselves working in at any one time. However, the implementation of this type of change can only be achieved properly by adopting sound project management principles and by adopting a comprehensive change management system. The structure and process contained within the Strategic Management of Change module delivered by the United States National Fire Academy Executive Fire Officer Program provides an adequate means by which significant organisational change can be implemented, monitored and reviewed.

The change process will be slow and careful executive level commitment and extensive workforce training will be required over a long period of time. The long-term outcome, however, of

adopting the SMT at each fire station will see NSWFB firefighters develop not only a high level of self-esteem but they will also develop a more holistic management philosophy for themselves. They will also be embarking on a more highly paid career marked by success in areas such as project management, people management, leadership and financial management – in addition to a strong focus on community needs. By simulating the positive features of the incident environment at each fire station, increasing and measurable improvements will be made to the level of service delivery to the community and limited financial resources will be used more effectively through a significant reduction in the level of unnecessary cost associated with absenteeism.

Recommendation

That the Commissioner of the New South Wales Fire Brigades establish a joint consultative committee comprising members of the NSWFB Corporate Executive Group; senior NSWFB Human Resource and Industrial Relations managers and members of the Fire Brigade Employees' Union to develop and implement the concept of Self Managing Teams within the NSWFB workplace as part of the next NSWFB/FBEU Consent Award Agreement negotiations.

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Appendix A

Fire Stations Visited to Conduct Informal Survey

Mosman Fire Station

Dee Why Fire Station

Crows Nest Fire Station

Cooks Hill Fire Station

Berowra Fire Station

Manly Fire Station

City of Sydney Fire Station

Lane Cove Fire Station

Narrabeen Fire Station

Neutral Bay Fire Station

Appendix B

U.S. National Fire Academy Executive Fire Officer Program
Survey Questionnaire

I am participating in a course at the United States National Fire Academy (NFA). One of the course requirements is that I submit an assignment that has a high degree of relevance to my organisation (NSWFB).

The following fourteen survey questions form part of the NFA assignment. They are designed to identify whether or not the NSWFB is satisfying the needs of its employees in relation to the work being performed at frontline locations. In all but one question, the questions seek to examine this issue at both the fire station environment and the incident environment. The other question is more general.

Some basic demographic questions are asked at the end of the survey form.

The fire station environment refers to the routine work that takes place within the fire station and its station area while the incident environment includes fires; rescue; hazmat and response to natural hazards.

There is no need to think about each question for any length of time; simply answer how you feel. The survey should take 5-10 minutes to complete and there are no right or wrong answers.

Please read each question carefully and circle the response you feel most accurately describes your feelings under both headings (Fire Station and Incident). There are five possible responses; these are:

Very low

Low

Medium

High

Very high

Your station was selected at random. The questionnaire is confidential and you will not be identified; the results will be combined to provide a general view, not an individual one. Survey forms will not be provided to anyone other than myself. Surveys returned by fax will have the source identification removed before I analyse them. Surveys conducted in person will be added to all the returned surveys before being analysed.

Participation in this survey is voluntary and the results will be used only for the purpose of the NFA assignment. **This survey is not being conducted for the NSWFB and individual responses can't be identified.** Should you wish to clarify any questions, I can be contacted on 02-9901-2400 or 0417-416-759. **Ken Thompson.**

Fire Station	**Incident**

Variety of work
What level of workplace variety
do you believe exists at fire stations?

Variety of work
What level of workplace variety
do you believe exists at incidents?

Very low

Low

Medium

High

Very high

Challenges
At what level would you
rate the workplace challenges that confront
you at fire stations   ?

Challenges
At what level would you
rate the workplace challenges that confront
you at incidents?

Very low

Low

Medium

High

Very high

Complexity
How would you rate the
level of complexity associated
with the work you perform at
fire stations?

Complexity
How would you rate the
level of complexity associated
with the work you perform at
incidents?

Very low

Low

Medium

High

Very high

Freedom
What level of freedom do you have
to do things at fire stations which have
an impact on the final outcome?

Freedom
What level of freedom do you have
to do things at incidents which have
an impact on the final outcome?

Very low

Low

Medium

High

Very high

Task Identity
How do you rate the work you do
at the fire station in terms of its
importance to you?

Very low

Low

Medium

High

Very high

Feedback
What level of positive feedback is provided
to you by NSWFB management about the
work you perform at fire stations?

Very low

Low

Medium

High

Very high

Task significance
How significant do you feel your work is at
fire stations. In other words, how meaningful
is the work to you?

Very low

Low

Medium

High

Very low

Low

Medium

High

Very high

Task Identity
How do you rate the work you do
at an incident in terms of its
importance to you?

Very low

Low

Medium

High

Very high

Feedback
What level of positive feedback is provided
to you by NSWFB management about the
work you perform at incidents?

Very low

Low

Medium

High

Very high

Task significance
How significant do you feel your work is at
incidents. In other words, how meaningful
is the work to you?

Very low

Low

Medium

High

Very high

Participation in decision-making
What level of involvement do you have in
the decisions senior officers make in relation to
the management of fire stations?

Very low

Low

Medium

High

Very high

Loyalty
What level of loyalty do you feel towards
the NSWFB when thinking   about
the work you perform at fire stations?

Very low

Low

Medium

High

Very high

Technology
How do you rate the level of
technology available to you at fire stations?

Very low

Low

Medium

High

Very high

Training
How do you rate the level of training provided
to you in relation to the work you
perform at fire stations?

Very low

Very high

Participation in decision-making
What level of involvement do you have in
the decisions senior officers make in relation to
the management of incidents?

Very low

Low

Medium

High

Very high

Loyalty
What level of loyalty do you feel towards
          the NSWFB when thinking about
the work you perform at incidents?

Very low

Low

Medium

High

Very high

Technology
How do you rate the level of
technology available to you at incidents?

Very low

Low

Medium

High

Very high

Training
How do you rate the level of training provided
to you in relation to the work you
perform at incidents?

Very low

Low

Medium

High

Very high

Personal identification with NSWFB's success
When you hear or read about successful outcomes
at fire stations, how much do you personally
identify with these successes?

Very low

Low

Medium

High

Very high

Relationship between employee and management
How do you rate the level of trust between
yourself and NSWFB management?

Very low

Low

Medium

High

Very high

Personal needs
What level of flexibility is provided to you
by the NSWFB for your family and lifestyle needs?

Very low

Low

Medium

High

Very high

Low

Medium

High

Very high

Personal identification with NSWFB's success
When you hear or read about successful outcomes
at incidents, how much do you personally
identify with these successes?

Very low

Low

Medium

High

Very high

Relationship between employee and management
How do you rate the level of trust between yourself
and NSWFB management?

Very low

Low

Medium

High

Very high

Position in the NSWFB (Please circle those that apply to you)

- Station Commander

- Leading Firefighter

- Qualified firefighter

- Firefighter L1-L4

- Married

- Single

- Divorced

- Single-parent

- Male

- Female

Years of service (Please circle the one that is relevant to you).

- Less than five years

- Five to ten years

- Eleven to fifteen years

- Sixteen to twenty years

- Twenty-one to twenty-five years

- Twenty-six to thirty years

- More than 30 years.

If you would like a copy of the survey results, please contact me on 02-9901-2400 or 0417-416-759.

Thankyou for participating.

Ken Thompson.

Appendix C

Fire Station Survey Locations

Mona Vale Fire Station

Mosman Fire Station

Ryde Fire Station

Drummoyne Fire Station

Gordon Fire Station

Hurstville Fire Station

Campbelltown Fire Station

Macquarie Fields Fire Station

46 Station

56 Station

Bondi Fire Station

Berowra Fire Station

Ryde Fire Station

83 Station

Bankstown Fire Station

49 Station

54 Station

Appendix D

Histograms and Distribution Curves

Variety of Work

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Challenges

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Complexity

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Freedom

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Task Identity

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Feedback

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Task Significance

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Participation in Decision-making

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Loyalty

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Technology

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Training

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Personal Identification with NSWFB's Success

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Relationship Between Employee and Management

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High

Support

Fire Station

1 - Very Low to 5 - Very High

Incident

1 - Very Low to 5 - Very High